

September 1, 2000

**VIA E-DOCKET**

Ms. Donna Caton, Chief Clerk  
Illinois Commerce Commission  
527 East Capitol Avenue  
Springfield, Illinois 62794-9280

**Re: Docket No. 00-0393**

Dear Ms. Caton:

Enclosed for filing, please find the following documents concerning the above-referenced docket:

1. Direct Testimony of James D. Dunbar, Jr. on behalf of Sprint Communications Company L.P. d/b/a Sprint Communications L.P.; and
2. Direct Testimony of Michael D. West on behalf of Sprint Communications Company L.P. d/b/a Sprint Communications L.P.

Thank you for your assistance in this matter. Please call me if you have any questions.

Very truly yours,

Kenneth A. Schiffman

KAS:sjw

Enclosures

cc: Service List  
(w/enclosures)

**STATE OF ILLINOIS**  
**ILLINOIS COMMERCE COMMISSION**

Illinois Bell Telephone Company )  
 ) Docket No. 00-0393  
 Proposed Implementation of High )  
 Frequency Portion of Loop (HFPL)/Line )  
 Sharing Service )

**DIRECT TESTIMONY OF  
JAMES D. DUNBAR, JR.  
ON BEHALF OF  
SPRINT COMMUNICATIONS L.P.**

1   **Q.    Please state your name, place of employment, and business address.**

2   A.    My name is James D. Dunbar, Jr. I am employed by Sprint/United  
3       Management Company as a Senior Manager – Network Costing at 6360  
4       Sprint Parkway, Overland Park, Kansas 66251. I am testifying on behalf  
5       of Sprint Communications L.P. (hereafter referred to as “Sprint” or the  
6       “Company”).

7  
8   **Q.    What is your educational background?**

9   A.    I received a Bachelor of Science in Engineering degree from Pennsylvania  
10       Military College (now Widener University), Chester, Pennsylvania with a  
11       split emphasis in Computer Design Engineering and Nuclear Reactor  
12       Engineering. In 1983, I received a Master of Business Administration  
13       degree from James Madison University, Harrisonburg, Virginia with an  
14       emphasis in Business. I have also completed numerous industry  
15       engineering, planning, and costing related courses covering general,  
16       outside plant, traffic, and transmission engineering, transmission noise  
17       mitigation, technical planning, equipment deployment, and costing. I have  
18       attended numerous manufacturer seminars on the latest NGDLC  
19       equipment and its deployment.

20

1   **Q.    What is your work experience?**

2    A.    From 1966 to 1970, I served as an Officer in the U.S. Army Signal Corps  
3           leading or commanding signal units on various communications  
4           assignments including command of a U.S. Strike Force International  
5           Communications Team. Responsibilities included the provision of FM,  
6           UHF, microwave radio, radio/wire integrated links, landline, switching,  
7           operator services, network control, and secure communications.  
8           Following active duty, I continued in a reserve status assigned primarily to  
9           the U.S. Army Air Defense School at Ft. Bliss, Texas as a senior  
10          communications instructor and course analyst.

11        From 1970 to 1973, I was employed by the Denver & Ephrata Telephone  
12        & Telegraph Company in Ephrata, Pennsylvania. My duties included  
13        outside plant engineering, traffic engineering, COE engineering, PBX  
14        engineering, development of certain cost studies, and some Circuit  
15        Equipment maintenance.

16        I have been employed by Sprint Corporation or one of its predecessor  
17        companies since 1973. From 1973 to 1985, I was located in Virginia.

18        From 1973 to 1974, I was an Outside Plant Engineer with responsibility for  
19        many projects including a complete rework of the University of Virginia  
20        loop plant. I worked as a Transmission Engineer during 1974 and then  
21        was assigned to manage the state capital budget and outside plant  
22        planning group for the 1974 to 1976 period. This group was assigned  
23        responsibility for engineering all outside plant capital projects in excess of

1       \$25,000 and budgeting for all classes of plant. From 1976 to 1978, I was  
2       District Plant Manager for the 1800 square mile Southern Virginia District  
3       where I managed the Construction, Maintenance, and Installation forces.  
4       From 1978 to 1984, I managed various Regulatory costing functions,  
5       including the state depreciation and cost separations group. From 1984 to  
6       1985, I was General Manager - Interexchange Services where I managed  
7       the cost separations, rates and tariffs, depreciation, and the interexchange  
8       carrier billing/contract and interface functions. I was a member of the  
9       Virginia Telephone Association Separations Committee.

10      From 1985 to 1993, I was General Staff Manager - Separations for the  
11      predecessor Centel Corporation staff in Chicago, Illinois. My job functions  
12      included managing the cost separations staff, the revenues and earnings  
13      monitoring function, the programming and modeling support for those  
14      functions, and cost issue analysis activities such as rate of return versus  
15      price caps and FCC/NARUC rule changes. I was the primary corporate  
16      interface with USTA and NARUC for technical issues. I served on the  
17      USTA Technical Operations Committee, the Price Caps Team (from 1987  
18      to 1991), and the Policy Analysis Committee. I also taught a portion of the  
19      USTA Separations Classes.

20      From 1993 to the present, I have been assigned to the Sprint/United  
21      Management Company Local Telephone Division Staff. From 1993 to  
22      1994, I was Manager - Separations with responsibility for the merger of  
23      the Centel and Sprint separations functions and various other costing and

1 monitoring activities. Since 1994, I have been in my current position with  
2 responsibility for analysis and modeling of costing issues, such as LIDB  
3 and 800, broadband implementation, local loop, and the development of  
4 the Benchmark Costing Models sponsored by Sprint Corporation and  
5 others. I have co-authored each of the Benchmark Cost Models including  
6 Benchmark Cost Model (BCM) versions 1 and 2, Benchmark Cost Proxy  
7 Model (BCPM) versions 2, 2.5, 3.0 and 3.1.

8 In addition to the BCM/BCPM/SLCM development activities, I have been a  
9 member, since its inception, of the Telecommunications Industries  
10 Analysis Project (TIAP) (currently sponsored by the University of Florida)  
11 industry team. As a member of that team, I helped to develop the TIAP  
12 Broadband Model and participated in the writing of numerous TIAP papers  
13 on current telecommunications issues. I have conducted proxy cost  
14 modeling workshops on and off the record in states all across the nation.

15

16 **Q. Have you testified previously before state regulatory commissions or**  
17 **appeared before the FCC Commissioners and Staff?**

18

19 A. Yes, I have testified before the Commissions in Florida, Kansas, Missouri,  
20 Nevada, New Jersey, North Carolina, Oregon, Pennsylvania, Texas,  
21 Virginia, and Washington. I have also presented numerous state  
22 workshops and seminars on cost modeling – both on and off the record.  
23 In the Federal arena, I have presented numerous workshops and exparte  
24 presentations to the FCC Commissioners and their staffs. I participated in

1 weekly workshops with the FCC Common Carrier Bureau Staff during the  
2 development and selection of an interstate USF cost model.

3

4 **Q. What is the purpose of your testimony?**

5 A. My testimony focuses on Ameritech's unjustified price structure for loop  
6 conditioning and the totally arbitrary and incorrect assignment of basic  
7 loop costs to line sharing submitted in its testimony and proposed tariff.

8

9 **Loop Conditioning**

10

11 **Q. Why do loops need to be conditioned?**

12 A. "Conditioning" generally refers to the removal of load coils, bridge tap,  
13 and/or repeaters. There are historic reasons why conditioning of loops is  
14 required today.

15 The telephone network was originally built for voice grade circuits using a  
16 long loop resistance design. All loops over 18,000 feet were equipped  
17 with load coils to reduce signal loss within the voice frequencies. Loops  
18 under 18,000 feet did and still do not require load coils. A feeder pair was  
19 often spliced to more than one distribution cable pair to insure greater  
20 availability of pairs to meet new service requirements. All cable pairs on  
21 the loop that are not within the direct path between the customer location  
22 and the central office is known as bridge(d) tap. With the advent of higher  
23 speed data services and larger numbers of pairs per location, carrier  
24 systems with their associated repeaters were placed on copper pairs.

1 With the advent of newer technologies that are capable of high frequency  
2 services over bare copper pairs such as xDSL, a need for copper pairs  
3 with no load coils, repeaters, and minimal bridge tap was created. Load  
4 coils, repeaters, and excessive bridge tap are signal inhibitors or  
5 interferors to the new services and must be removed. Pairs that  
6 previously required treatment must now be made clean or conditioned.

7

8 **Q. Do all Loop's need to be conditioned?**

9 A. No, only loops that have these inhibitors such as load coils, bridge taps  
10 and repeaters need to be conditioned in order to provide the high  
11 frequency portion of the loop for use in line sharing or xDSL service. For  
12 loops less than 18,000 feet, the number requiring conditioning should be  
13 minimal. Sprint's experience with loops within 18,000 feet shows that  
14 approximately three percent have load coils present. Most loops greater  
15 than 18,000 feet require some form of conditioning.

16

17 **Q. What is the proper engineering design criteria for the placement of**  
18 **load coils in the loop plant?**

19

20 A. North American Engineering resistance design standards, the precursor to  
21 Carrier Serving Area (CSA) design, state that only loops longer than  
22 18,000 feet will have load coils installed. Load coils are placed at  
23 locations that are 3,000', 9,000' and 15,000' from the switch and each  
24 6,000 feet thereafter. A load point may not deviate from that spacing by  
25 more than 120 feet. A customer may not be placed between load coils on

1 a loop. The cable beyond the last load point commonly called the “end  
2 section” is the portion of cable along which the customer is placed. This  
3 end section, including bridge tap, must be at least 3,000 feet and no more  
4 than 9,000 feet. These loading standards are based upon the same “H88”  
5 standard that Ameritech uses.

6 The most common loading scheme used is called “H88,”  
7 where the “H” designates 6,000-foot spacing between the  
8 coils, and the “88” designates an inductance of 88  
9 millihenries (i.e., 44 millihenries for each wire).<sup>1</sup>  
10

11 CSA design to which the industry is transitioning restricts all copper loop  
12 segments to less than 12,000 feet and does not utilize load coils or  
13 repeaters and minimizes any bridge tap.  
14

15 **Q. Are there adjustments that need to be made to the cost study for**  
16 **load coil removal?**

17  
18 **A.** Yes, Ameritech has assumed that in 100% of occurrences, it will need to  
19 remove three load coils from a cable pair that is between 12,000’ and  
20 17,500’ long. In the specific case of the customers to which this charge  
21 applies – those located between 12,000’ and 18,000’ – there should not  
22 be more than two load coils to remove, not the 3 that Ameritech has  
23 assumed. For those customers located between 12,000’ and 18,000’, the  
24 engineering guidelines discussed above show that there should be no  
25 more than two load coils to remove. There are only two load coils

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<sup>1</sup> *Schlackman Direct Testimony*, Page 33-34.

1           between the customer and the switch – those at 3,000 feet and 9,000 feet.

2           As previously stated, design rules require that customers not be served  
3           between load coils and should be on an end section of 3,000 to 9,000 feet.

4           The customers between 15,000' and 18,000' cannot have more than two  
5           load coils to remove because their pair cannot be loaded at the 15,000  
6           foot load point 3 (the third load point requires an end section of at least  
7           3,000 feet). While bridge tap may exist in the end section, it is not part of  
8           the 3,000 foot minimum design beyond the last load. Therefore any loop  
9           with the 15,000 foot load point has been designed for more than 18,000  
10          feet.

11          Customers between 12,000 and 15,000 feet would fall between load coils  
12          which is not permitted. Again, Ameritech will only need to remove load  
13          coils at two locations, but they are proposing to charge for removing load  
14          coils at three locations.

15          The first of three corrections that should be applied to load coil removal  
16          cost is to adjust for the removal of 2 load coils, not 3 as recommended by  
17          Ameritech, for loops less than 18,000 feet. A non-recurring charge of  
18          \$448.82 should be used. The cost of load coil removal is \$224.41 per  
19          occurrence. This is demonstrated by dividing \$673.22 by three resulting in  
20          a cost of \$224.41. \$224.41 is the same rate that Ameritech charges for  
21          each additional load coil removal over and above 17,500 feet as noted on  
22          Schedule JRS-4, tab 3, Line 6. Since there are only two load coils the  
23          charge should be \$448.82 (2 \* \$224.41). Only loops beyond 18,000 feet

1 in length that require load coil removal should include charges for the third  
2 load point.

3 As discussed later, the charge for removing load coils should also be  
4 reduced to reflect unloading 25 or more pairs at a time for loops shorter  
5 than 18 kilofeet in length. Loop conditioning charges for pairs over 18,000  
6 feet should be based on specific cost characteristics related to the  
7 underground, buried or aerial work at each work location and not use a  
8 blended or average work mix for all locations in the rate.

9

10 **Q. What is the second adjustment that needs to be made to the load coil**  
11 **removal cost study?**

12

13 A. Ameritech needs to account for the economies of removing multiple load  
14 coils at a time on loops less than 17,500 feet. When ILECs need to  
15 remove a load coil for a particular service order, an efficient provider will  
16 perform the associated load coil removal work activities for at least an  
17 entire 25 pair binder group. This would increase the chances that  
18 subsequent xDSL-capable loop orders could be accomplished without the  
19 ILEC sending technicians out to perform load coil removal activities again.  
20 The vast portion of the total load coil removal cost is associated with  
21 technician(s) traveling to the work location, setting up the work area and  
22 gaining access to the cable pairs. Once the cable splice is opened, it only  
23 takes a few extra minutes or seconds to remove additional load coils. For  
24 ILECs with very dense major metropolitan areas, it would be even more

1 efficient to groom any binders in larger size cables in 50 or even 100 pair  
2 increments. The removal of these load coils in bulk corrects any loading  
3 incorrectly present in loops less than 18,000 feet, reduces costly repeat  
4 work operations, reduces costs for the provisioning of future xDSL-  
5 capable loops for ILEC retail DSL customers, and helps provision future  
6 CLEC UNE requirements.

7

8 **Q. When you discuss "removing" a Load Coil or "unloading" a pair,**  
9 **what work is actually involved?**

10

11 **A.** Generally, the load coil is not actually removed, it is just disconnected  
12 from the cable pair. This involves snipping off the 4 wires that connect the  
13 coil to the cable pair and then reconnecting the two ends of the cable pair.  
14 In larger cables, this may involve removing a connector that splices  
15 twenty-five pairs at a time, pulling out the load coil wires and replacing the  
16 connector.

17 The actual work time involved in making the connections is no more than  
18 a minute or two, but set-up time can be significant when working in  
19 manholes. This is why an efficient ILEC will unload multiple pairs at one  
20 time when working on loops under 18,000 feet in length, instead of  
21 unloading only the pair required for the current order. If it is technically  
22 feasible to remove the load coils for one loop in an open splice, it is  
23 technically feasible to remove the load coils for all loops in that splice at  
24 the same time. Since all fall within the 18,000 foot no load coil design

1 limit, there is no reason why the additional load coil removal should not be  
2 done simultaneously to insure the lowest overall cost to the ILEC.

3 The cost of these incremental load coil removals is minimal compared to  
4 the cost of setting up the work site and opening manholes and cable  
5 splices. Sprint proposes that an efficient environment should be used and  
6 that load coils should be removed a binder group (typically 25 pairs) at a  
7 time. Thus the cost of removing 2 load coils of \$448.22 (noted previously)  
8 should be allocated over 25 lines for a cost of \$17.93 per loop. Ameritech  
9 would also gain the benefit of line conditioning in this efficient manner as  
10 they offer xDSL services on these same unbundled loops.

11  
12 **Q. Please describe how proposed Loop Conditioning costs should be**  
13 **developed.**  
14

15 A. There are significant labor cost differences associated with accessing  
16 cable pairs as required to perform Loop Conditioning activities when  
17 working in different outside plant (OSP) environments. Loop Conditioning  
18 costs should be developed based upon the work tasks that are necessary  
19 to perform conditioning activities within the actual OSP conditions that are  
20 encountered. This approach enables the recovery of costs that more  
21 accurately reflect the different types of OSP conditions encountered when  
22 performing loop conditioning work activities.

23 For instance, it is more time-consuming to perform loop conditioning work  
24 activities in underground manholes than it is to perform the same work

1 procedures within aerial or buried OSP facilities. This is because, unlike  
2 the aerial and buried OSP environments, a single technician cannot  
3 perform loop conditioning work activities in the underground environments  
4 as a minimum of two laborers are required for safety reasons. The time  
5 that may be required for pumping out water and purging the manhole of  
6 potentially dangerous gases are also not required when working in the  
7 aerial and buried OSP facilities. Since manholes are some times located  
8 and accessed within city streets, there can be additional costs associated  
9 with setting up traffic control as opposed to the aerial and buried  
10 environments where utility trucks can usually pull off and away from the  
11 roadways.

12 Consequently, a loop comprised of all-aerial and/or all-buried OSP  
13 facilities would require significantly less labor hours to perform loop  
14 conditioning activities than a loop that involves underground OSP facilities.  
15 Ameritech's cost model inappropriately averages these significant work  
16 time differences. An efficient service provider's NRC cost model should  
17 recognize that in both aerial and buried plant facilities, the majority of  
18 cable pair access locations involve quick and easy access to the cable  
19 pairs via "ready access" splice enclosures. The utilization of such  
20 enclosures is common industry practice - even in buried plant  
21 environments as these cable pair access locations are normally brought  
22 above ground into a pedestal.

1 Therefore, for all bridged tap and repeater removals, and for load coil  
2 removal on loops greater than 18,000 feet in length, the NRCs should be  
3 based upon the actual OSP environments for the locations requiring loop  
4 conditioning work activities.

5 Perhaps most importantly, for load coil removal on loops under 18,000  
6 feet in length, a different NRC cost study approach is warranted. Because  
7 cable pairs are generally loaded in groups of 25, and are not needed at all  
8 on loops less than 18,000 feet in length to provide Plain Old Telephone  
9 Service (POTS), separate costs should be determined based upon a more  
10 efficient load coil removal process. Sprint considers it to be reasonable to  
11 spread the fixed costs of accessing the cable pairs across all the pairs that  
12 would be unloaded in a 25 pair binder group. The incremental labor costs  
13 associated with unloading 24 more cable pairs should be added to a  
14 single engineering and travel charge and then divided by 25 to determine  
15 the cost per pair for the entire binder group.

16 RBOCs such as Ameritech cover more urban areas, with greater customer  
17 densities and larger cable sizes and could employ a cost model that  
18 assumes even greater efficiencies, such as performing load coil removal  
19 in greater quantities such as 50 or 100 pairs at a time.

20

21 **Q. Please summarize your comments on Loop Conditioning.**

22 A. Ameritech's loop conditioning charges are over-stated because of the  
23 faulty assumptions that are the foundation of their cost study as outlined

1       above. Ameritech incorrectly assumes that 3 load coils need to be  
2       removed for all loops that are shorter than 17,500 feet in length.  
3       Ameritech's loop conditioning price structure does not acknowledge the  
4       dramatic work time differences associated with the various type of OSP  
5       conditions that exist. Finally, Ameritech fails to recognize the economies  
6       of scale that should be incorporated to load coil removal activities for loops  
7       shorter than 18,000 feet in length.

8       Loop conditioning costs should be based upon current, actual costs  
9       incurred by an efficient provider. For load coil removal on loops over  
10      18,000 feet in length, and all bridged tap and repeater removals, the costs  
11      should be determined on a per order basis. These costs should be  
12      determined based upon the actual locations and types of outside plant  
13      facilities that work would need to be performed in (Underground, Aerial or  
14      Buried) to provision the UNE order.

15      For load coil removal on loops shorter than 18,000 feet in length, the costs  
16      should be determined based upon an efficient process such as removing  
17      load coils at a minimum of 25 pairs at a time. This study should also  
18      account for actual frequency of occurrence that the first two (not three)  
19      load points are found to be within underground, aerial and buried OSP  
20      facilities.

21

1           **UNE Loop Allocation of Shared Lines**

2       **Q.    Are there any incremental loop related costs associated with Line**  
3       **Sharing?**

4  
5       A.    Yes. The incremental costs of the loop are the cost of the Customer  
6           Premise Equipment (the splitter inside the house) which the CLEC installs  
7           and pays for, the splitter and jumper cable at the central office, and any  
8           loop conditioning. Ameritech has developed rates for the splitter and  
9           jumper cable at the central office and loop conditioning.

10

11       **Q.    Are there other incremental costs associated with a line-shared**  
12       **loop?**

13  
14       A.    No. All other loop costs are accounted for in existing local service or UNE  
15           rates.

16

17       **Q.    Please summarize your comments on the allocation of loop costs.**

18       A.    There should be no allocation of loop costs for line sharing. In other  
19           words, Ameritech should charge CLECs \$0 for the loop costs for line  
20           share loops. There is no incremental loop cost caused by line sharing that  
21           is not already recovered in other Ameritech rates. The basic loop cost is  
22           fully recovered in the underlying voice grade service offering.

23

24       **Q.    Does this conclude your testimony?**

25       A.    Yes, it does.